

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)



B. Tech (Sixth Semester - Regular) Examinations, April 2026

23BCMPC36001 – Computer Networks

(CSE-AIML)

Time: 3 hrs

Maximum: 60 Marks

Answer ALL questions
(The figures in the right-hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- | | CO # | Blooms Level |
|--|------|--------------|
| a. In a fully connected mesh network with n = 6 nodes, calculate number of links required. | CO1 | K3 |
| b. Compare circuit switching and virtual circuit networks. | CO2 | K4 |
| c. Define CSMA/CD and explain its purpose. | CO3 | K2 |
| d. Explain the Process-to-Process delivery with a neat diagram. | CO4 | K1 |
| e. Write a short note on TELNET. | CO6 | K1 |

PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions

- | | Marks | CO # | Blooms Level |
|---|-------|------|--------------|
| 2. a. Explain OSI model with functions of each layer. | 5 | CO1 | K2 |
| b. Discuss line encoding techniques and compare NRZ and Manchester with an example. | 5 | CO1 | K4 |
| (OR) | | | |
| c. Explain Analog to Digital conversion using PCM with example. | 5 | CO1 | K3 |
| d. Explain different types of network topologies with diagram. | 5 | CO1 | K2 |
| 3.a. Explain flow control techniques with example. | 5 | CO2 | K2 |
| b. Discuss different types of HDLC frames with their functions. | 5 | CO2 | K3 |
| (OR) | | | |
| c. Explain the working of Hamming Code for error correction. | 5 | CO2 | K2 |
| d. Write a short note on: (i) Stop and Wait ARQ (ii) Go-Back N ARQ | 5 | CO2 | K4 |
| 4.a. Explain CSMA protocols and compare their persistence methods. | 5 | CO3 | K4 |
| b. Explain reservation-based access protocol with advantages. | 5 | CO3 | K2 |
| (OR) | | | |
| c. Discuss CSMA/CD protocol and its working with collision detection mechanism. | 5 | CO3 | K4 |
| d. Explain token passing and polling techniques. | 5 | CO3 | K2 |
| 5.a. Explain IPv4 addressing and subnetting with example. | 5 | CO4 | K3 |
| b. Explain ARP and ICMP protocols. | 5 | CO5 | K2 |
| (OR) | | | |
| c. Compare IPv4 and IPv6 addressing with suitable examples. | 5 | CO4 | K4 |
| d. Discuss how Leaky Bucket Algorithm is useful in Traffic Shaping. | 5 | CO5 | K2 |
| 6.a. Explain DNS architecture and working. | 5 | CO6 | K2 |
| b. Discuss the HTTP request-response mechanism. | 5 | CO6 | K3 |
| (OR) | | | |
| c. Explain E-mail protocols with architecture. | 5 | CO6 | K2 |
| d. Discuss firewall types and their applications. | 5 | CO6 | K2 |

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